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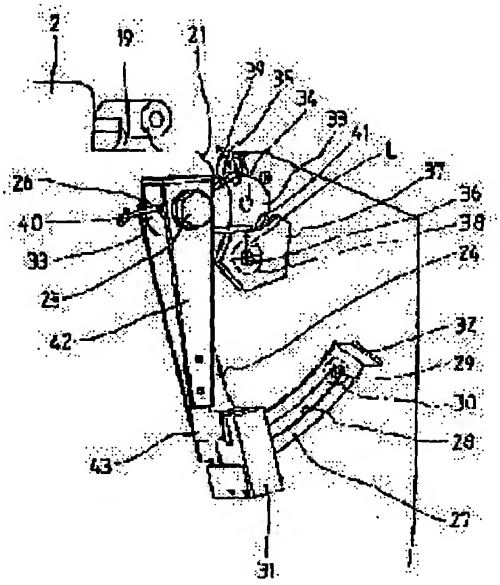
(54) DIAMETER CHANGEABLE DISK BODY TRANSMISSION DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To exclusively set plural kinds of disk bodies to one desired type by means of adjustment with a simple manual operation by providing a roller means which can freely move for opening the exit of the disk bodies and a control means for setting the roller means in a position corresponding to the diameters of the disk bodies.
SOLUTION: When a rotary disk rotates, a coin which is pushed out along the upper edge of an upper exit knife and which passes pushes up the roller against a spring. When the roller is pushed up, a movable arm 33 rotates, a proximity switch 31 operates and the coins are counted. At the time of using the desired coin, the side wall of a control board 37, which becomes a seven angular ring form so that a distance between the upper edge of the exit knife becoming a reference and the roller fits to the diameter of the used coin, is selected and it is fixed by a screw 38. Since the diameter can be changed with the simple manual operation in accordance with the diameter of the used coin, the diameter can be changed with the simple operation when the coin of a memory changer is exchanged to the coin of different denomination.



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CLAIMS

[Claim(s)]

[Claim 1] Disk object sending-out equipment which was characterized by what is characterized by providing the following and in which diameter change is possible. The roller means in which movement for resisting the elasticity of a spring and opening the outlet of this disk object with the disk object sent out along with datum level at least is free. The detection means in which movement for detecting movement of the regulation means and the aforementioned roller means for this roller means and contact being attained and setting the aforementioned roller means as the position corresponding to the diameter of the aforementioned disk object is possible.

[Claim 2] Disk object sending-out equipment characterized by the aforementioned regulation means containing the baffle plate of a square-ring form, and the screw for fixing this baffle plate in the publication of a claim 1.

[Claim 3] Disk object sending-out equipment characterized by including the regulation arm which the aforementioned detection means can move freely at least, and the screw for fixing this regulation arm in publication [which / of a claim 1 or a claim 2].

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the sending-out equipment of a disk object for sending out the disk object of the same kind of the supplied rose **** state to piece [every] accuracy outside. Specifically, this invention adjusts beforehand manually the disk object of the same kinds, such as a medal of a disk form used for the coin of a disk form which is money, or a game, according to the size of the diameter, and relates to the disk object sending-out equipment which can send out every [a piece] and the disk object of the same kind correctly and in which diameter change is possible. this invention relates to the disk object sending-out equipment which enabled it to send out the coin of the denomination to every [a piece] and the exterior certainly and in which diameter change is possible by carrying out an easy hand regulation befor hand according to the size of the diameter of the coin still more specifically used among the various coins which are currency. Therefore, this invention is suitable disk object sending-out equipment for the vending machine containing the equipment, for example, the medal loan machine etc., for processing two or more kinds of disk objects etc., the money-changing machine of currency, the game equipment of medal use, etc. in which a new diameter change is possible.
[0002]
[Description of the Prior Art] Various things are developed as sending-out equipment of an old disk object. For example, the sending-out equipment of the coin which is a disk object is indicated by JP,62-45588,B by this applicant. Drawing 6 is the perspective diagram showing conventional coin sending-out equipment, and drawing 7 is the perspective diagram expanding and showing the important section. This coin sending-out equipment is equipped with the hopper 5 of a pan form which has opening horizontally for storing the coin for sends attached in the circular base board 2 which received horizontally and was formed by carrying out a standing-up inclination, and this base board 2, and the rotation disk 6 which rotates around the axis of rotation (illustration is omitted) in the position which carried out [as opposed to / the inside of this hopper 5 / horizontally] the standing-up inclination. This rotation disk 6 has the pin 8 for two or more coin delivery which protruded on the disc-like rest 9 prepared in the center section of the upper surface, and the upper surface of periphery section 6a of the rotation disk 6 which is the outside of this rest 9 at the predetermined intervals at the circumferencial direction.
[0003] Moreover, although this coin sending-out equipment omitted illustration, it has two or more balls for [which estranged mutually to the circumferencial direction and was inserted at it between periphery section 6a of the rotation disk 6, and the base board 2] bearings. the means for supporting for these balls supporting periphery section 6a of the rotation disk 6 free [rotation] on the base board 2 — in other words, bearing equipment is constituted Furthermore, while this coin sending-out equipment has the outlet knife 10 formed above periphery marginal 9a of the aforementioned rest 9 so that point 10a might be touched It had the outlet chute 11 for receiving and emitting the coin C (seeing drawing 6) taken up by upper-limb 10b of this outlet knife 10, and has stirring equipment 15 for stirring the coin in a hopper 5 on the aforementioned rest 9 further.
[0004] In addition, a roller 13 counters above the outlet knife 10, and is arranged above. This roller 13 is attached in the operation arm 12 of an inverted-U character form by which the pivot was carried out, and although this operation arm 12 omitted illustration, it is energized with the spring of a switch for carrying out counting of the coin, for example. therefore, the thing for which the coin C which passes the upper outlet section 7 resists and makes a roller 13 a spring (illustration abbreviation) — a coin — counting — the ** switch operates and counting of Coin C is performed 14 of an ellipse form shown above drawing 6 and drawing 7 is a wiper, and is for preventing b ing sent in after Coin C has overlapped the upper outlet section 7. A wiper 14 is an elastic product made of rubber, intervenes a fix d block 16 and is attached in the base board 2. In addition, 17 is for suppressing a wiper 14 on the hood 19 which is a leaf and is a circumference wall surrounding the rotation disk 6.
[0005] Moreover, the reference number 1 drawing 6 is caudad indicated to be is a frame for installation, and is for attaching coin sending-out equipment in predetermined positions, such as a money-changing machine and the medal exchange. The pin 8 for two or more coin delivery protrudes on the rotation disk 6, and the coin

sending-out equipment mentioned above builds the maintenance pocket of Coin C by th se rests 9 and the coin delivery pin 8 while th disc-like rest 9 corresponding to the size of the coin C which should be dealt with is formed in the center section of the rotation disk 6. By rotating the rotation disk 6 within a hopper 5, in each maintenance pocket of the rotation disk 6 in this way by the coin delivery pin 8 It picked up one coin C in a hopper 5 at a time, and sent to the upsid outlet section 7, the outlet knife 10 formed in this outlet section 7 so that point 10a may touch upper periphery marginal 9a of a rest 9 was intervened, and it has sent out one coin C at a time to the outlet chute 11.

[0006]

[Problem(s) to be Solved by the Invention] However, above-mentioned coin sending-out equipment is a thing only only for one kind of coin, and for [one kind of] medals, and there was an inapplicable trouble in the coin of other kinds, and a medal. That is, old coin sending-out equipment needed to change the whole sending-out equipment completely according to the diameter of a desired coin, when the kinds of coin differed and the diameters of a coin differed. Specifically, naturally the coins of the same kind fed into a hopper 5 differ in a diameter, when kinds differ. For this reason, the width-of-face size of periphery section 6a, the level difference size of periphery section 6a and a rest 9, etc. had to be further changed by the interval of the pin 8 arranged by the rotation disk 6, the interval, this pin 8 and periphery marginal 9a, and the denomination that is a coin.

[0007] In other words, conventional coin sending-out equipment needed to be changed for every coin which uses the whole rotation disk 6. this invention is disk object sending-out equipment which was easy manual operation, and enabled it to have developed from the purpose which solves an above-mentioned problem, and to correspond when changing the coin to be used although the rotation disk was changed and it dropped off and in which diameter change is possible. Specifically, this invention is to offer the new disk object sending-out equipment which does not need to change the rotation disk of coin sending-out equipment, and makes a diameter change in easy operation, when replacing and using the coin contained to handling machines of a coin, such as a money-changing machine, for the coin of another denomination. That is, the purpose of this invention is to offer the disk object sending-out equipment which can carry out [****]-izing to one kind of a requ st of two or more kinds of disk objects simply by adjustment by easy hand control and in which diameter change is free.

[0008]

[Means for Solving the Problem] At least this invention with the disk object sent out along with datum level The roller means in which movement for resisting the elasticity of a spring and opening the outlet of this disk object is free, It is disk object sending-out equipment which was characterized by having the regulation means for this roller means and contact being attained and setting the aforementioned roller means as the position corresponding to the diameter of the aforementioned disk object, and the detection means in which movement for detecting movement of the aforementioned roller means is possible and in which diameter change is possible. Moreover, this invention is disk object sending-out equipment characterized by the aforementioned regulation means containing the baffle plate of a square-ring form, and the screw for fixing this baffle plate. Furthermore, it is disk object sending-out equipment characterized by including the regulation arm to which the aforementioned detection means can move this invention freely at least, and the screw for fixing this regulation arm.

[0009]

[Embodiments of the Invention] this invention is explained with reference to an attached drawing about the operation below. In addition, the portion common to the drawing 6 row of the conventional example may be explained to be drawing 7 using the same reference number. Drawing 1 is the front view showing one example by this invention roughly, and drawing 2 is the rear-face view of drawing 1 . (A) of drawing 3 is the expansion plan which looked at the important section of drawing 1 from the upper part, and (B) of drawing 3 is the cross section which looked at drawing 1 from right-hand side. Drawing 4 is the expansion side elevation which looked at drawing 1 from right-hand side, and drawing 5 is the slant-face view expanding and showing the important section of drawing 2 further. The largest thing of an approximate circle form of drawing 1 is the base board 2 which constitutes disk object sending-out equipment, and mostly, this base board 2 inclines in the standing-up state a little, and is being fixed to it by the frame of a couple which omitted illustration.

[0010] The big hood 19 of abbreviation ring type is being fixed to the upper surface of the base board 2 by the screw stop etc. In addition, since it is mostly fixed across the standing-up state, although the base board 2 omitted illustration, it will have [the medial-axis line of the hood 19 of a cylindrical shape] about 30 inclinations to the horizontal line. Rotation disk 6A almost circular to the inside of the hood 19 of a cartridge intervenes the bearing mechanism which omitted illustration, and is contained free [rotation]. A little small round shape which exists in the center of rotation disk 6A is rest 9A, and as shown in (A) of drawing 3 , this rest 9A is formed a little highly rather than periphery section 6B of rotation disk 6A. In addition, the big hole 20 of the center of rest 9A is for inserting the driving shaft (illustration ellipsis) for being formed also in the base board 2, getting down, and rotating rotation disk 6A.

[0011] Moreover, two or more small holes of the circumference of the central hole 20 are for attaching the

spring for scrambling etc. (illustration abbreviation). At periphery section 6B of rotation disk 6A, it is r gular intervals and the pins 8A and 8B for sending out a disk object, for example, a coin, are formed in a hoop direction by the couple radial. In addition, although the postscript of the pin 8A inside periphery section 6B is carried out, it is mainly for gathering a coin and conveying it irr spective of the size of the diamet r of a coin. Moreover, although the postscript of th pin 8B of the outside of p riphery section 6B is carried out, it is mainly for sending out a coin out of equipment irresp ctive of the size of the diam ter of a coin.

[0012] Ther fore, the distance between the internal and external pins 8A and 8B is that are smallness rather than the coin which has th minimum diameter among the kinds of target coin of course, and it cannot be overemphasized than the coin in which the distance of p riphery marginal 9B and inside pin 8A which carry out a postscript also has the minimum diameter that it is smallness. Furthermore, disk object sending-out equipment is equipped with the outlet chute 11 for receiving and emitting the coin C (seeing drawing 1) guided to upper-limb 10B of this outlet knife 10 while it has the outlet knife 10 formed so that periphery marginal 9B of the aforementioned rest 9A might be touched in point 10A. The slitting 21 circular on a hood 19 was formed in the upp r base board 2 row of the outlet knife 10, and the roller 22 has fitted loosely into this slitting 21 free [rise and fall] so that a postscript may be carried out.

[0013] The upper reference number 23 of drawing 2 which is a rear-face view shows a little big bolt, and this bolt 23 is fixed to the hole formed in the base board 2 by bolting. The reference number 24 is the regulation arm of a little big L typeface, as the upper-limit section of this regulation arm 24 is shown in drawing 5 , sheathing of the rotation is made free to the shaft 26 of a bolt 23, and the circular long hole 28 of the sideways soffit section 27 is mostly formed in the whole. The reference number 29 is the screwhole formed in the base board 2, this screwhole 29 is formed so that it may be open for free passage with a long hole 28, and screwing of a screw 30 of it is attained. The rectangle object currently fixed to the left end of the soffit section 27 is a proximity switch 31, and the right end piece 32 of standing up is used when adjusting manually so that a postscript may be carried out. The thing of the upper simultaneously ellipse of drawing 5 is the movable arm 33 at the drawing 2 row.

[0014] This movable arm 33 is the left end section, while sheathing of the rotation is made free to a bolt shank 26, the shaft 34 is implanted in the direction of a transverse plane, and sheathing of the rotation of the roller 22 previously stated to this shaft 34 is made free to the right end section stop escaping. In addition, 35 of the margo inferior of the movable arm 33 is the piece of standing up crooked in the shape of L character. 36 of the lower part of slitting 21 is the screwhole currently formed in the base board 2, and screwing of the screw 38 for fixing the baffle plate 37 of about 7 square-rings type is attained at this screwhole 36. While 39 of the drawing 5 upper part is a spiral spring and sheathing of this spring 39 is carried out to a bolt shank 26 at the drawing 4 row, an end 40 is hung on the hole of the base board 2, and the other end is hung on the movable arm 33, and it is pressing the piece 35 of standing up of the movable arm 33 in the side wall 41 of a baffle plate 37.

[0015] while the thing of the typeface of 7 on the right-hand side of drawing 4 is a lever 42 and sheathing of the rotation of the upper-limit section of this lever 42 is made free to a bolt shank 26 — the point edge of this upper-limit section — the upper limb of the movable arm 33 — fixation — now, it is The piece 43 of iron is being fixed to the soffit section of a lever 42, and the passage of this piece 43 of iron near the proximity switch 31 is attained. In addition, 50 shown above drawing 1 by the small circle of an alternate long and short dash line is the small salient of a truncated-cone form, as shown in drawing 3 . As this salient 50 is shown in (B) of drawing 3 , it is the trapezoid bottom upper part and is fixed to a hood 19, and the trapezoid bottom lower part is projected free [a slide] in the slot 51 formed in the rim perimeter of periphery section 6B. Salient 50 is for preventing the lap of the coin currently conveyed.

[0016] That is, if high-speed rotation of rose product Misa **** and the big rotation disk 6A is counterclockwise carried out for the coin of the same kind in drawing 1 so much into a hopper head, in periphery section 6B, two coins lap and may be sent. the coin piece to which the coin by the side of the periphery which has lapped upwards will collide with salient 50, and lapped upwards as a result at this time — **** Japanese common chestnut **** — it is made like and made to fall In addition, a slot 51 is for preventing beforehand that a coin bites between periphery section 6B and salient 50.

[Example] Although this example which consists of above-mentioned composition omitted illustration, the hopper head of a pan form which the cave hole opened is suitably attached on the hood 19 of a cylindrical shape, and in this hopper head, when the same coin group which is a disk object is made into rose **** and the driving shaft (illustration abbreviation) of rotation disk 6A is rotated, rotation disk 6A will rotate counterclockwise in drawing 1 .

[0017] In this way, the coin C1 of the piece of the coin group (illustration abbreviation) of the disk object which drawing 1 sets caudad and has become rose **** will be hooked by inside pin 8of rotation disk 6A A, and will be conveyed up. Although it becomes that it is lik ly to fall with a self-weight as the coin currently conv yed up by inside pin 8A is conveyed up, as shown in the coin C2 of drawing 1 , a coin C2 will be supported by the step of periphery marginal 9B, will not fall, and will be further conveyed by the upper part and the counterclockwise rotation. When the coin conveyed counterclockwise comes to the top position, as it is shown in drawing 1 by pin

8A and periphery marginal 9B, Coin C will be guided by upper-limb 10B of the outlet knife 10, and Coin C will be further extruded by this outlet knife 10 and outside pin 8B at the left lateral of drawing 1 .

[0018] The coin C sent out to a left lateral in drawing 1 will pass the roller 22 which can move freely up and down. That is, along with upper-limb 10B of the upper outlet knife 10, the coin C which extrudes and is passed will resist and make a roller 22 a spring 39 (refer to drawing 4 and drawing 5). When a roller 22 is pushed up, as shown in drawing 2 , the movable arm 33 will rotate focusing on a bolt shank 26, th regulation arm 42 will rotate in the chain-line position of drawing 2 , the pi ce 43 of iron will pass a proximity switch 31, this proximity switch 31 will operate, and counting of Coin C will be performed as a result.

[0019] In addition, drawing 2 shows the case of a coin with the largest diameter to the drawing 1 row. namely, the baffle plate 37 — most, a baffle plate 37 is rotated, an outside side wall and the piece 35 of standing up of the movable arm 33 are adjusted so that it may contact by the elasticity of a spring 39, and a baffle plate 37 is fixed with a screw 38 after it It is the case where rotated the regulation arm 24 at the bolt-shank 26 center, opened the soffit of a long hole 28 for free passage to the screwhole 29, and the regulation arm 24 is fixed with a screw 30 by the piece 32 of standing up next in this position. It is the case where decide the position of the regulation arm 24 at movable arm 33 row when in other words a roller 22 moves up so that the piece 43 of iron may pass a proximity switch 31, when a lever 42 rotates counterclockwise in drawing 2 , and it fixes with a screw 30.

[0020] Drawing 5 shows the case of a coin with the smallest diameter. That is, it is the case where rotated the baffle plate 37, adjusted the side wall 41 with shortest Distance L of a baffle plate 37, and the piece 35 of standing up of the movable arm 33 so that it might contact with a spring 39, fixed the baffle plate 37 with the screw 38 after this, and rotated the regulation arm 24, next opened the upper limit of a long hole 28 for free passage to the screwhole 29, and the regulation arm 24 is fixed with a screw 30. Therefore, in using a desired coin, the side wall of a baffle plate 37 which becomes 7 square-ring type is chosen, and it fixes with a screw 38 so that the diameter of an used coin may be suited in the distance of upper-limb 10B of the outlet knife 10 used as criteria, and a roller 22. In other words, rotating a baffle plate 37 at the screwhole 36 center, a spring 39, the piece 35 of standing up, the movable arm 33, etc. are intervened, the position of a roller 22 is changed, the position of a roller 22 which suits the diameter of an used coin is chosen, and a baffle plate 37 is fixed with a screw 30.

[0021] After this, when a roller 22 is moved up (i.e., when an used coin moves a roller 22), at the bolt-shank 26 center, rotation change is carried out, and the piece 43 of iron adjusts the position of the regulation arm 24, determines the position, and is fixed with a screw 30 so that a proximity switch 31 may be passed. In addition, although the baffle plate 37 considered as the ring form of seven angles in the example, it is natural. [of it being good according to the number of the kinds of target coin as for a ring form more than a trigonum, for example, the ring form of five angles etc.,] moreover — an example — counting of a coin — although it was made as a means the combination of the non-contacted proximity switch 31 and the piece 43 of iron, of course, you may make it use the combination of a magnet and a reed switch, or the snap switch of a contact process

[0022]

[Effect of the Invention] The sending-out equipment of the disk object of this invention which is as mentioned above Since a diameter change is made in easy manual regulation operation according to the diameter of the disk object to be used, specifically For example, since a diameter change is made in easy adjustment operation when using it, changing the coin contained to handling machines of a coin, such as a money-changing machine, to the coin of another denomination, a big effect [say / that there is no need for changing a rotation disk etc.] will be acquired. In other words, a big advantage [say / that it can use the equipment of a piece for it effectively by adjustment by easy manual operation since the disk object sending-out equipment of this invention can carry out / **** /-izing to one kind of a request of two or more kinds of disk objects simply] is acquired.

[Translation done.]